

CAIV PROCESS INTEGRATION AND IMPLEMENTATION IDENTIFIED TOPICS AND ISSUES

**SCEA CAIV CONFERENCE
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Working Group 2

**Dr. Edmund H. Conrow (Independent Consultant), Co-Chair
Col. Adrian Gomez (AFSMC/MTS), Co-Chair**

WORKING GROUP #2 OUTBRIEF

- **This outbrief summarizes inputs from Working Group #2 (WG#2) speakers and members, at the 28-29 October 1998 SCEA CAIV Conference**
- **The outbrief is structured into seven sections, including material developed that is proposed for the following use:**
 - **WG#2 Participants**
 - **Overall (Document) Introduction**
 - **WG#2 Introduction**
 - **WG#2 CAIV Process Integration**
 - **WG#2 CAIV Process Implementation**
 - **WG#2 Case Studies**
 - **Miscellaneous (e.g., comments and questions)**
- **A less refined version of this outbrief was presented 29 October 1998 to the SCEA CAIV Conference**

WORKING GROUP #2 SPEAKERS

Last Name	First Name	Company
Conrow	Edmund	Consultant
*Ennis	Richard	AFMC Deskbook Support Office
Gomez	Adrian Col	AF SMC/MT
Haeger	Kent	Lockheed Martin Missiles & Space
Higdon	Dorsey LtCol	AF SMC/AXDT
Jay	Emily	AF Eglin AFB
Rosensteel	Tom Lt Col	AF SMC/MT
Vangel	Michael T.	Boeing

***Unable to attend conference. Presentation provided and given in WG #2 Session.**

WORKING GROUP #2 PARTICIPANTS (1)

Last Name	First Name	Company
Allen	Denise	Boeing SSD
Ashcraft	Carl P.	Lockheed Martin Mission Systems
Brauer	Jean M.	AF HQ Air Mobility Command
Burns	Ann-Marie	AF ASC/ENSM
Cambra	Frank	Lockheed Martin Mission Systems
Cameron	Michael	Boeing SSD
Chou	Jeff	TRW
Conrow	Edmund	Consultant
Craig	Gary D.	Harris Intelligence Systems Center
Davis	Paul W	TRW
Dawson	Robert	Raytheon/HAC
Dodson	Edward	GRC International
Englebart	David	Boeing
Fetting	Antony M	Lockheed Martin Missiles & Space
Ford	Mary	Wright-Patterson, AFB
Fujii	Allen	TRW
Glaab	Arthur K.	Boeing
Glenn	John	TRW
Glover	John C	AF SMC/MCP
Gomez	Adrian Col	AF SMC/MT
Haeger	Kent	Lockheed Martin Missiles & Space
Hansen	Dennis J	Harris Intelligence Systems Center
Higdon	Dorsey LtCol	AF SMC/AXDT
Holman	Kim A.	AF SMC/FMC
Huang	Fuay-wan (Sally)	TRW

WORKING GROUP #2 PARTICIPANTS (2)

Last Name	First Name	Company
Jay	Emily	AF Eglin AFB
Johnson	Sherri L	Lockheed Martin Missiles & Space
Kos	Gerry B	Syrius Research
Kravitz	Richard	Northrop Grumman Norden Systems
Marks	Ken	Aerojet
Montez	Mike	Hughes Space & Comm
Moran	Steve	Lockheed Martin Missiles & Space
Moser	James M.	ITT Industries, Systems Division
Nesman	Miles	Boeing - Rocketdyne Propulsion & Power
Noah	Douglas	Boeing
Roberts	Tom	Raytheon/HAC
Roof	Chuck	TRW
Rosensteel	Tom Lt Col	AF SMC/MT
Slocum	George	Lockheed Martin Vought Systems
Smoker	Roy Col.	AF SMC/FMC
Stepanek	Steve	Tecolote
Thamm	William	LMMS
Thomas	Joseph (Tom)	General Dynamics Amphibious Systems
Turner	Deanna Taki	Boeing SSD
Vangel	Michael T.	Boeing
Vasallo	Alex N.	
Vaughan	Lori	TRW
Wagman	Samuel D	Lockheed Martin Missiles & Space
Ward	Greg L.	Mainstay Software Corporation
Wettermark	Alfred B.	Lockheed Martin Tactical Aircraft Systems
Yu	Peter	TRW

OVERALL INTRODUCTION (1)

The following items are WG#2 inputs to the overall document Introduction

- **Define CAIV**
- **Is CAIV a philosophy, process, or both?**
- **Why is CAIV important?**
- **Identify first principles for getting CAIV started on a program**
- **How is CAIV different than existing program philosophies and processes (e.g., life cycle focus, incentives and closer working relationships of key personnel)?**
- **How should CAIV be integrated with strategic planning?**
- **What is the motivation for industry executives to perform CAIV?**

OVERALL INTRODUCTION (2)

**The following items are WG#2 inputs to the overall document
Introduction, continued**

- What dollar magnitude program (by phase and life cycle) should CAIV be applied?**
- What will CAIV cost to implement (e.g., non-recurring resources and budget)?**
- What are the potential benefits of implementing CAIV (potential non-recurring and recurring cost savings and other)?**

WORKING GROUP #2 INTRODUCTION (1)

The following items are partial inputs to the WG#2

Introduction

- **How will CAIV implementation differ for a new start opportunity versus an existing program?**
- **CAIV requires sound technical and behavioral characteristics to be successful**
 - **Technical aspects: see Process Integration**
 - **Behavioral aspects: see Process Implementation**
- **Discussion of categories of models and tools relevant to CAIV process integration and implementation**

WORKING GROUP #2 INTRODUCTION (2)

**The following items are partial inputs to the WG#2
Introduction, continued**

- **Discussion of the types of data needed to support CAIV trades by program phases (e.g., models and databases)**
- **Potential differences in government versus industry data**
- **Include key references (actual citations located in a bibliography):**
 - **Government CAIV references (e.g., December 1995 Dr. Kaminski CAIV memo)**
 - **Other key government documentation (e.g., Defense Acquisition Deskbook)**
 - **Other non-commercial resources available (e.g., DSMC and web sites)**

CAIV PROCESS INTEGRATION (1)

- **Integration of CAIV into higher level processes**
 - **CAIV should be integrated with program management and systems engineering**
 - **Key inputs, functions and outputs between CAIV and these processes**
- **Integration of CAIV into same level/lower level processes**
 - **CAIV should be integrated with design synthesis, life cycle cost analysis, manufacturing, requirements flowdown, risk management, schedule analysis, etc.**
 - **Key inputs, functions and outputs between CAIV and these processes**
 - **Common ground rules and assumptions are needed across processes for trade studies**

CAIV PROCESS INTEGRATION (2)

- **CAIV objectives by program phase**
 - **CAIV process and how it is integrated with other processes will vary by program phase**
 - **Same level and lower level processes (e.g., risk management)**
 - **Higher level processes (e.g., program management)**
- **Methodologies and tools needed to support CAIV**
 - **Tools must be effective and objective to extent practical**
 - **Appropriate tools will vary by program phase due to the level of information available and its confidence**
 - **Accurate risk analysis, life cycle cost estimation techniques, etc.**

CAIV PROCESS INTEGRATION (3)

- **Metrics for use with CAIV**
 - **Appropriate metrics are required to evaluate progress in achieving CAIV goals**
 - **What information should be provided by a metric?**
 - **Metrics should be objective and cover required disciplines**
 - **What observables make sense to monitor?**
 - **Required metrics may vary by customer**
- **Frequently asked questions for CAIV integration**
 - **Develop a set of frequently asked questions and potential answers for integrating CAIV with other processes by program phase**

CAIV IMPLEMENTATION (1)

- **What organizations participate in a program's CAIV activities?**
 - **The acquirer, sustainer, user, prime contractor, major subcontractors, lower tier subcontractors (e.g., key suppliers) should be represented on IPTs and senior councils as appropriate**
 - **“Buy-in” should exist from other key stakeholders (e.g., Service and OSD)**

CAIV IMPLEMENTATION (2)

- **What organizational vehicles should facilitate implementation?**
 - **Effective IPTs, rather than historical program structures (e.g., stovepipes) with new names can help**
 - **Other vehicles as warranted (e.g., senior council)**

CAIV IMPLEMENTATION (3)

- **Organizational behavior to increase the likelihood of successfully implementing CAIV**
 - **Upper management support is crucial**
 - **Workers should consider CAIV principles as a part of their normal job functions**
 - **CAIV implementation will be weak or fail if inadequate management or workers motivation exists**
 - **CAIV should be practiced daily (not infrequently)**
 - **Use of CAIV information as part of the decision making process**

CAIV IMPLEMENTATION (4)

- **Interaction between personnel**
 - **Continual interaction should exist between cost, design, requirements, risk, schedule and other appropriate personnel**
 - **Historically, level of interaction has often been both limited and serial in nature**

CAIV IMPLEMENTATION (5)

- **Program phases associated with CAIV**
 - **CAIV is relevant across the program's life cycle**
 - **Trades made early in the life cycle will propagate through the production and O&S phases**
 - **All program phases should be included unless specifically ground ruled out by the contract**

CAIV IMPLEMENTATION (6)

- **CAIV implementation by program phase**
 - **Implementation will vary by program phase**
 - **How does emphasis/focus shift versus acquisition phase?**
 - **Develop a set of frequently asked questions and potential answers for implementing CAIV by program phase**
 - **How does the role of the acquirer, sustainer, user, prime contractor, major subcontractors, lower tier subcontractors (e.g., key suppliers) and other stakeholders change?**

CAIV IMPLEMENTATION (7)

- **Design trades**
 - **Trades should not be “ad hoc” or unstructured**
 - **A common, structured design trade process should exist to the extent possible across the program**
 - **A suitable format and communications channel should exist**
- **Metrics**
 - **See Integration Section**

CAIV IMPLEMENTATION (8)

- **CAIV documentation**
 - **Documentation should not be “ad hoc” or “after the fact”**
 - **Documentation should be readily accessible by all program members**
- **Sharing of cost/CAIV models between government and industry**
 - **Models and underlying data should be shared to the extent possible**
 - **The competitive environment will be a constraint on sharing information**
- **Level of communication and trust between participants**
 - **Open and honest communication should exist**

CAIV IMPLEMENTATION (9)

- **CAIV training**
 - **CAIV training is often either absent or ineffective**
 - **CAIV training should include process integration and implementation considerations**
 - **Explore available DAU, DMSC and Air Force CAIV training**
- **Use of CAIV generated information**
 - **CAIV-related information should be used by decision makers**
 - **Day-to-day decisions**
 - **Evaluating unanticipated events**
 - **Evaluating potential product improvements**

CAIV IMPLEMENTATION (10)

- **Merit and incentives associated with CAIV**
 - **Current merit system may not suitably incentivize and compensate government and industry for achieving implementing CAIV and achieving cost savings**
 - **The merit system should reward organizations and individuals for meeting C,P,S--not just performance**
 - **Financial and non-financial merit should be considered**

CAIV IMPLEMENTATION (11)

- **Merit and incentives associated with CAIV, continued**
 - **SPOs and their contractors should be able to keep at least some potential cost savings for use on the same program**
 - **How should CAIV savings be shared between government and industry and flowed down?**
 - **How should award fee and incentives should be flowed down within an organization (e.g., prime contractor) and between organizations (e.g., prime and subcontractors)?**

CASE STUDIES

- **Possible JDAM and SBIRS High case studies, plus others**
- **Case studies should include programs where CAIV was introduced relatively early (e.g., Concept Exploration and PD/RR) and later (EMD, production and O&S) in the acquisition cycle**
 - **This will provide some information on how CAIV integration, implementation and results was shaped by acquisition phase (holding all else constant)**
- **Develop an CAIV Flow chart for each program (if possible, because of competition sensitive constraints)**
- **Availability of OSD/IDA CAIV Flagship study as an input**
- **Interaction with current OSD/IDA CAIV study (provide inputs/receive outputs)**

MISCELLANEOUS (1)

The following items are WG#2 miscellaneous comments and questions

- Working Group output will be filtered--the process is TBD**
- Availability of draft outputs for review (e.g., web)**
- Should document be written for Air Force or all DoD (includes review)?**
- Review and approval authority of output is unknown (e.g., Air Force, tri-service)**
- Keep document simple--is this possible?**
- Can the Environmental Cost White Paper be used as a report/guide model**

MISCELLANEOUS (2)

The following items are WG#2 miscellaneous comments and questions, continued

- **Don't make CAIV a mandatory "RFP" requirement (for WG#3)**
- **Don't make a Cost/Performance IPT (CPIPT) mandatory (for WG#3)**
 - **Other, potentially better ways exist for implementing and monitoring CAIV**
 - **Few programs currently use an CPIPT**